

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: burdick@interval.com (Wayne Burdick)  
Subject: [1700] A Proposal: The Weak Signal Proficiency Index  
Message-ID: <199507140146.SAA28922@interval.interval.com>

I'm posting this as an experiment in broadcast-mode article submission. Usually writers send things to specific places and wait for them to respond. Instead, I'm sending it everywhere, and I'll see if *\*anyone\** responds. If not, I still have the satisfaction of "internet publication," for what that's worth.

Hope you find both the experiment and the article interesting. Send me your thoughts and corrections.

Thanks,  
Wayne

[Typographical note to potential editors: asterisks around a word indicate italicization.]

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A Proposal: The Weak Signal Proficiency Index  
Wayne Burdick, N6KR

One Field Day a decade ago, with my friend Kelly duping and me at the key, I made a contact that left both of us shaking our heads. I still don't know how I did it. The station was weak, his code speed was in the vicinity of 30WPM, and another station was on top of him at precisely the same pitch, speed, and signal strength. Any veteran of Field Day has made contacts like this.

How do we do it? Perhaps we're able to detect the modulation of one signal by the other. What I want to get to, here, is how we might actually measure this ability. But first I'll lay some ground work based on my experience copying QRP signals.

### The Power Level Fallacy

I was thinking about how we QRPers, when introducing QRP to others, frequently make statements like this:

"No problem! 5 watt is only about two S-units down  
from 100 watts..."

What's missing from this declaration is any consideration of signal-to-noise ratio. If the band is very quiet, power level may not an issue; both signals may be equally easy to copy. But if the 100-watt station is only 6 dB above the noise on the band, then a 5-watt signal will be 6 dB \*below\* the noise level. A similar comparison can be made with respect to adjacent signals (QRM). If they're weak, no problem. If they're loud, they can leave the QRP signal in the dust.

The bottom line is that simple power-level comparisons are misleading. We should pat ourselves on the back since we're doing a much harder job than we think when we successfully copy weak signals.

### Miles per What?

This brings up a related topic: "Miles per watt." Aside from the obviously non-linear relationship of these two quantities, I think we're giving credit to the wrong party. The operator on the receiving end is doing the work. The guy with the key or mic is just being persistent.

In recognition of this I propose a different measure of skill for those who copy weak signals: the Weak Signal Proficiency Index. This index would measure what portion of a message an operator could accurately receive per unit of time, given a certain signal-to-noise ratio. In that sense it is closer to the standard communication engineering measurement of Bit Error Rate (BER), which is normally applied to machines.

While it lacks the drama and romance of "Miles per watt," such a measure would better assess how well \*you\* can copy the Weak Ones. Also, both distance and power level are irrelevant in measuring WSPI. For any given distance and power level you can degrade receiver performance to obtain any desired level of difficulty.

### Measuring WSPI

The question I'd like to pose is, how could WSPI best be defined and tested? The degree to which copying is hard depends not only on code speed, S/N ratio, rate of fading, etc., but also on the kind of message being sent. Random letter strings are hard, typical QSOs are comparatively easy. And I'll let someone else speculate on how you might determine an SSB operator's WSPI.

What would you actually be measuring? It would be a combination of human and equipment capabilities. For the receiver it is a test of things like selectivity, audio channel distortion level, and internally-generated noise. For the human, it is a test of many things, including hearing,

short-term memory, attention span, and the ability to guess the value of missing symbols. WSPI can be a test of man and machine as a team, and a biathlon for those who build their own receivers.

A useful way to think about WSPI is that it is just like an ARRL Code-Proficiency test run, except with specific receiving conditions. Ideally, CP runs measure proficiency only with respect to code speed. WSPI is a more general measure of ability.

CP runs provide one possible route to WSPI testing: simply provide receivers with accurate signal-to-noise gauges, and let the operator turn down the RF gain or open the I.F. bandwidth until the meter hits a particular level. In this case, we might define WSPI this way:

$$\text{WSPI} = (\text{Speed} * \text{Accuracy}) / \text{SN}$$

where:

Speed is the CP test code speed

Accuracy is correct symbols/total symbols

SN is the average signal-to-noise ratio over the test period, in dB

Of course, you might also want to add linearizing coefficients.

But There's a Catch...

There's one problem with the above equation. How do you measure signal-to-noise ratio when it's up to the human to determine what is signal and what is noise? Laboratory tests aside, conditions are likely to be very bad, especially at the high end of the WSPI scale. You can't just hook up a code reader--that's the whole point of this article.

One way to measure SN accurately in this case is to measure the receiver's audio output signal level both with and without the desired signal present, averaged over some reasonable time interval. The ARRL CP run could be formatted differently to facilitate this, with silence periods interspersed with the test text. To help synchronize the operator's audio level measurements, the transmitter power could be briefly raised by 10 to 30 dB just prior to each silence period, and a special synchronization string transmitted.

Using this technique you could automate the measurement process, and even track it over extended periods. (I'm sure you low-power-types will read between the lines: the CP run itself would have to be transmitted at 1 to 100 watts--not a kW. It is fitting that WSPI runs should be QRP.) In addition, all you need is a digital multimeter and perhaps a low-pass filter to make accurate readings.

## Conclusion

Somewhere out there are the real superstars at copying weak code. Who are they? What else are they good at? Is it the same group who can copy \*fast\* code? Probably not.

I think that until now, truly skilled weak-signal artists have labored in obscurity, overshadowed by those with the biggest antennas, the most miles per watt, the highest scores on contests. I hope that we can use WSPI--or something like it--to give CW operators a new way to gauge their unique ability.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Johnson\_Dan@AAC.COM  
Subject: [1722] FYI - VY1QRP (from ARRL ARLD038 DX news)  
Message-ID: <9507141949.22615.aa@SMROUTER.AAC.COM>

Content-Type: text/plain; charset=US-ASCII

CANADA. QRP DXPEDITION. Stefan, DL1FDF, will be active as VY1QRP July 24 to October 16. He will travel through Ontario, Manitoba, Saskatchewan, Alberta, British Columbia, Northwest Territories and the Yukon Territory. Check around 0500z on 14060 or 14285 khz. Also try the following QRP frequencies, CW/SSB. 3560/3690 kHz, 7030/7090 kHz and 14060/14285 kHz.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Goran Hosinsky <hosinsky@royac.iac.es>  
Subject: [1718] how to run SPICE?  
Message-ID: <9507141609.AA09417@royac8.royac.iac.es>

Hi!

I am trying to run the SPICE simulator program (simtel dspice0b.zip) in DOS but get "CPU must be in REAL mode (not V86 mode) to run this program".

Does anyone know how to change to REAL mode - or know of a SPICE

version wich runs under DOS (386 + coprocessor)

73 Goran ea8yu hosinsky@royac.iac.es

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Mike.Czuhajewski@bbs.abs.net (Mike Czuhajewski)  
Subject: [1701] Humor for 72  
Message-ID: <1995Jul13.230547.6304@abs.net>

K1LGQ recently asked for items for 72, and for humorous stories as well. Here are two things that I have been trying in vain to get published in the QRP Quarterly since 1992. I kept after XXXX to put them in, but XXXX never did it. Maybe they will appear in the future, now that we've had major turnover in the Quarterly staff. I don't know if these appear in the July issue or not--it's not on the streets yet--but I hereby throw these out to ANY QRP journal that wants to publish them. If someone at the QRP Quarterly wants to use them too, take them and run with them. God knows I've tried and tried and tried....since 1992! Enjoy.

--W8MCQ

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#### LOCAL QRPER BUSTED!

A local ham, well known for (what he said were) his QRP activities and homebrew rigs was the subject of a pre-dawn raid by the enforcement arm of the FCC. Ric Campbell, of Carpenter Street, was charged for running a 5000 watt station. "I should have realized that something was wrong when the bamboo spreaders of my quad caught fire," said Campbell ruefully.

A Radio Shack milliammeter, mislabeled as being a microammeter, seems to have been the culprit. "I couldn't get proper power output," said the amateur, "so I just kept on adding to the final amp. I had just achieved what I thought was five watts out when my SWR went haywire. I looked out to check my antenna just as the fire department rolled up."

All equipment was impounded. "I never seized an amplifier before that consisted of nine thousand 2N2222's running in parallel," said Rufus Bluthund, the special FCC investigator assigned to the case; "we're using it to heat our office at the Allegan (Michigan) monitoring station now."

No information was available on Campbell's application for the first 10 meter HF CW QRP EME DXCC award.

Reprinted from the April 1, 1992 supplement to the April 14, 1992 issue of Chirps and Clicks and Spurious Emissions, published by the Kalamazoo (MI) Amateur Radio Club. Our thanks to QRPer Jim Hope, AA4RV, for sending it to us (and apologies for taking 2 years to get it into print!).

[heh heh heh.....2 years to get into print, huh? This was from the 1994 annual resubmission :-)]

--WA8MCQ

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QRP GROUP TRASHES HOSPITALITY SUITE AT DAYTON!

Michael A. Czuhajewski WA8MCQ  
7945 Citadel Drive  
Severn, MD 21144

Fortunately, this headline never appeared in the Dayton Daily News, although it could have. The following true story was told to me in the late 80's by a well known QRPer who shall remain anonymous. I was told never to repeat this story publicly, but quite a few years have passed since the incident and the statute of limitations has probably expired by now.

It was the morning after the usual, big pizza party in the hospitality suite on the 11th floor, at the QRP Hotel in downtown Dayton (which seemed to change its name every two years whether it needed it or not). Our hero decided to look in on the room to see how bad a mess was left for the cleaning crew, and he was horrified. There was trash everywhere, cigarette butts overflowing the ash trays, "billllyuns and billllyuns" of beer bottles and cans, dead pizza carcasses ground into the carpet, pizza toppings splattered on the walls, etc. He just knew that the management would bar the QRP ARCI from the hotel for all eternity, and perhaps even initiate legal action, if word of this devastation got out.

As he stood in the door wondering where he could find a couple QRPers to help him with an emergency clean-up, to his horror he saw a member of the cleaning crew coming toward him, with all her tools in tow. He ran to meet her, and whipped out a twenty dollar bill. "Look," he said, "before you go inside the hospitality suite I want to apologize

for the mess in there. I'm in a position of some power in the organization that used it, and I really don't know what to say. They've never done anything like this before, and I'm deeply ashamed of what happened to it. We'd really like to keep on coming here in the future, and maybe you'll accept this little gratuity in return for not telling the management about it."

She took the money, walked up to the room, stuck her head inside, and said, "Honey, this ain't nothin'--you shoulda seen this place after the Shriners convention got done with it!"

--qrp--

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Mike Czuhajewski, user of the UniBoard System @ abs.net  
E-Mail: Mike.Czuhajewski@bbs.abs.net  
The WB3FFV Amateur Radio BBS - Located in Baltimore, Maryland USA  
Supporting the Amateur Radio Hobby, and TCP/IP InterNetworking

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: prvalko <prvalko@Oakland.edu>  
Subject: [1715] I have to tell someone...  
Message-ID: <Pine.OSF.3.91.950714113535.18085B-100000@saturn.acs.oakland.edu>

Atwo days ago, my wife hands me this little ad out of our VERY local newspaper... maybe a thousand copies every week, it's mostly (all) little classified ads.

FOR SALE: OLD HAM RADIOS xxx-xxxx

Well, it's 11pm, so I let them sleep.

Forgot about it yesterday.

Gave 'em a call this morning.

"Did you have an ad?"

"YES!"

"Anything left?"

"No, some guy came and took it all."

Well, you all can figure out what happened next!

"Uhhh... do you remember what any of it was?"

"No, not really. It was a bunch of old ham radios."

"A 'bunch'?"

"Yes, there were five or six of them"

I begin to sweat.

"Do you remember any names?"

"No. Uhhh... Halicraft? Hammerland? I think that was it. They were big and had lots of dials."

"Oh jeez..." I say aloud.

"There were lots of old magazines, QST? Does that mean anything? We had Hundreds of them."

"Wow," I tell her. "Some of that stuff is worth quite a bit of money. I hope you didn't give it away."

"Don't blame me, my husband sold it all for \$50."

uhh =paul= wb8zjl

Collector of Ten Tecs, and other fine plastics.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: adams@chuck.dallas.sgi.com (chuck adams)  
Subject: [1716] Miles per Watt  
Message-ID: <199507141606.LAA07229@chuck.dallas.sgi.com>

What with the discussion of this topic, thought I'd add my two cents.

The miles per watt award can be applied for by either party or both. It does reward the receiving station also. A lot of the applicants will pay for both and get one for themselves and one for the receiving party.

dit dit

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Chuck Adams K5FO CP-60 adams@sgi.com

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Charles Cashion <ccashion@spdmail.spd.dsccc.com>



Subject: [1724] QRP Volume III

Message-ID: <199507141848.AA15543@aplo1.spd.dsccc.com>

QRP'ers:

About a week ago, somebody posted name/address/etc regarding volume III of QRP for about \$15. I have deleted that info. Could somebody send me that? (or post it, if you would prefer).

Charles Cashion

ccashion@spd.dsccc.com

xW5ISZ

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: "Nick Franco" <NICKF@rcadmin.nov.add.bnl.gov>

Subject: [1726] QRP vs dx; QRP vs DX; qrp vs DX - I've sinned.

Message-ID: <MAILQUEUE-101.950714172410.352@rcadmin.nov.add.bnl.gov>

For your amusement.

Last night I got on the air with my SW-30. I do a lot of listening lately. I heard a couple of CQ's and tried to no avail to make a Q. There was one 4 call who asked QRZ about 3 or 4 times but then said SRI OM QRM and proceeded to call CQ again. So I wasn't really getting anywhere. With that as a backdrop.....

I start tooling around the band and suddenly hear OY1CT QRZ. I figure what the heck, I can't resist a DX call when I hear one. I'll have to give it a try even though I can't even reach a 4 call. I didn't even look to see where OY was. No big deal. So ... I try several attempts to call in with the pile up. I go above and below in frequency and right on the guy -- nothing. QRP vs dx!

Now the pile up and the DX station are starting to get to me. I love chasing DX. So I figure ... well, I have my ICOM turned down to 4 watts. It's not homebrew but it is still QRP after all. So, I jump into the middle of the pile up with my ICOM at 4 watts and try for a while to hook this DX fish. I began my maneuvering up and down trying to get heard in the midst of the "big guns." No dice, just an exercise in futility. The desire for the DX station is starting to get to me. I look up the OY and it's Faroe Is. I don't have this one on any band at any power level. QRP vs DX! Oh no....

I look down at the RF OUT control. With a somewhat shakey hand and thinking of what you guys would think of me. I...., I...., I turned up to 100 (yeah 100) watts. Then with guilt and desire I jumped into the middle of the pile up and locked onto the DX's signal and pulled

the trigger. He gave me 569 at 100 watts. I made the Q, but I didn't feel too good about it. Why did I get so wrapped up in getting this guy anyway. I guess, because he was there! qrp vs DX! Sorry!

Have a great weekend all,

72 (if you let me say that still),  
Nick

.....-.- ..-.. ..-.- ..-.- ..-.- ..-.- ..-.- ..-.- ..-.- ..-.-  
Nick Franco - Computer Systems and Network Support  
Brookhaven Nat'l Lab - RHIC Project  
Building 1005 - Rm. 201 - UPTON, N.Y. 11973-5000 U.S.A.  
tel:(516)282-5467 Ham Call: KF2PH  
fax:(516)282-3674 QRP-NE # 349

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Clark Fishman (FSAC) <cfishman@fsac3.pica.army.mil>  
Subject: [1711] Signal Strength  
Message-ID: <9507141032.aa15835@FSAC3.PICA.ARMY.MIL>

Donuts per Db...I like that

Maybe Dunkin can make our S meters

Each donut has to be small....this is QRP

Clark WA2UNN

roasting in New Jersey

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: jcumming@clark.dgim.doc.ca (Jim Cummings)  
Subject: [1714] Signal Strength  
Message-ID: <9507141537.AA25435@clark.dgim.doc.ca>

>From: Clark Fishman (FSAC) <cfishman@fsac3.pica.army.mil>  
>  
>Donuts per Db...I like that  
>

>Maybe Dunkin can make our S meters  
>  
>Each donut has to be small....this is QRP  
>  
>  
>Clark WA2UNN  
>  
>roasting in New Jersey  
>  
>

Up here in the True North Strong and Free, we got Tim Hortons Donuts, from whom you can buy a Timbit which is that part of the donut that made the hole! (It also happens to be the name of one of our cats!) So in our case, it would be Timbits per dB...

Just a thought...

On a serious note, any one care to know of a more objective measure of the equipment capabilities on HF?

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=====
                Jim Cummings
    eMail:jcumming@clark.dgim.doc.ca
    packet:VE3XJ@VE3JF.#EONT.ON.CA.NOAM
        73 and live better digitally
        DON'T GET TOO EXCITED...
    because remember, today is the first
        day of the rest of your life.
=====
```

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: doug@acpy01.utsd.att.com (os2user@vmdoug.utsd.att.com)  
Subject: [1713] Some Questions about the VE7ZM California Board SSB rig  
Message-ID: <9507141521.AA0128@vmdoug.utsd.att.com>

Has anyone built the California Board SSB rig that appeared in the March 1995 issue of NorCal's QRPP ? I need some help.

This looks like a really neat SSB transceiver. After I read the article I ordered the Showa filter from NorCal. Now I'm getting ready to etch the board and I'm doing some construction planning. I need some help with a few very minor details that I can't seem to figure out from the article.

Doug's Questions:

- 1) The NorCal supplied Showa filter has pins labeled as "IN" and "OUT" yet the circuit doesn't specify which way to connect the filter. Does it matter ? It actually looks from the circuit that the filter is used both ways (one way for RX and the other way for TX).
- 2) What kind of microphone is used ? Anything from the junk box? A high impedance mike? low impedance ? a tape recorder 600 ohm mike ?
- 3) What relay is used for K1 ? Just any old relay from Radio Shack ?
- 4) What can I substitute for the VN10KM (Q1, the driver). Could I get away with using some other common transistor in this circuit ?

Any answers or suggestions are most appreciated.

Doug KA2UPW

doug@acpy01.utsd.att.com

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: burdick@interval.com (Wayne Burdick)

Subject: [1721] WSPI follow-up

Message-ID: <199507141631.JAA12354@interval.interval.com>

Thanks for all of the early feedback. I'll post a summary of all the input that I get at some point. While there is some disagreement about whether you can actually measure weak-signal copying ability in the way I proposed, most agree that such a measure would be welcome. I haven't heard back from the ARRL yet as to whether they'll modify the CP runs to accomodate the WSPI silence synchronization technique. :)

Paul, N6HCS points out that if you're doing your copying mobile you'd need to take in-vehicle noise into account. This could be accomodated by a simple change in the SN measurement technique: use a microphone to pick up the audio from the station receiver's speaker rather than a direct connection to the receiver's audio output.

Also, it occurs to me that the formula for WSPI needs to be slightly modified to take 0dB SN and negative value of SN into account. Perhaps an offset could be added:

$$\text{WSPI} = (\text{speed} * \text{accuracy}) / (\text{SN} + \text{Offset})$$

where Offset is chosen to be large enough to compensate for the largest possible negative SN that a human could copy. Sorta like "absolute zero"

temperature.

Any volunteer mathematicians want to take a crack at refining the formula to make it more useful?

73,  
Wayne

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: mitchell@dtcs70.dtc.Kodak.COM (Brad Mitchel)  
Subject: [1704] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <9507141228.AA16122@dtcs70.dtc.kodak.com>

A nice conceptual idea,  
However, most hams won't be able to produce a S/N ratio index that will mean anything relative to other's measurements.

The problem is that a new measure would need to be simple. For instance the reason miles per watt is so useful is that it is very easy to measure, and remember.

Wayne, you are right, the miles/watt rewards the person doing the least amount of work. This isn't a good gauge at the person's ability to receive. A S/N measurement injected with a qso's per hour may be an appropriate measure, but who will indeed come up with the elusive instrument that can determine what is noise, and what is not. If we had that info to begin with, we would be able to modify our receiver to an infinite s/n.

I rather that we need something simple. Something very simple in terms a gauge for this.  
The best way I can think is having a standard receiver, a standard antenna, and a limited time period to come up with max qso's.  
For instance, maybe you could say, using a xxx direct conversion receiver during Field day, with a 30 ft high antenna on 80 meters, how many qso's can you get between hour a and hour b.. from location x.

That kind of information would yield a part of what you are getting at, but would also include sending ability into the variable. But alas, this is way too complicated to take on. A measure needs to be simple! as simple as possible or it will not be used.

Therefore I conclude that it should be donuts per dB. A simple enough measure that would be easy to remember, and easy to impliment. For instance, if the signal is s1 and you're able to eat several donuts and carry on a qso while doing so, you're the man! If however, it's s5 and you just can take your sweating brow off the focus of the front panel of the rig, then you're not! Pretty simple, however it's practical and I'm sure that we could all impliment it.

Tongue in cheek guys, but in reality, in order to be accepted globally, it needs to be as simple in these terms.

73 and have fun! :-) . Brad WB8YGG  
Off the wall today for sure.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Mike Thomas <MTHOMAS@UGA.CC.UGA.EDU>  
Subject: [1708] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <950714.092638.EDT.MTHOMAS@UGA.CC.UGA.EDU>

Everyone,

Since the Miles per Watt award requires confirmation from the receiving station, if I am not mistaken, then both should receive the award. With maybe a note on the award for transmitting or receiving. What do you think?

KE4LAU

Mike Thomas

University Computing & Networking Services  
University of Georgia

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Harry\_Chase@smtpgw.windata.com (Harry Chase)  
Subject: [1717] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <9506148057.AA805748320@smtpgw.windata.com>

Donuts per dB.... Now I'm hungry.

The only problem with more points awarded according to how many donuts you can eat while having a QSO is that we will all end up fat enough to make a pig jealous... (is this what they meant by being a ham???)

Harry  
WA1VVH

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: WIrish.PARC@xerox.com  
Subject: [1725] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <"14-Jul-95 13:50:53 PDT".\*.Wesley\_Irish.PARC@Xerox.com>

All,

Wayne suggested that I forward my reply to the rest of the group. Hope it's not just extra junk in your mail.

~Wes

-----  
Sender: Wesley Irish:PARC:Xerox  
From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
Subject: Re: A Proposal: The Weak Signal Proficiency Index  
From: WIrish

Hi Wayne,

While I don't find the general concept new -- many of us have long since held copy capability as one of the highest skills in ham radio -- I find your ideas on how to compare and measure it interesting.

One idea I had after reading your article (although I realize that this isn't exactly where you were headed) is a new version of the hamfest competition. It is typical to have various skills competitions at hamfests, such as code speed, straight key sending, etc. This version would use a common audio system, similar to what the examiners use when giving the CW tests, to feed the same audio to multiple people to compare skills. This may very well already be done at some hamfests but I don't know.

Thinking about a juxtaposition of the two ideas leads to a third. Rather than creating a system to distribute common audio to different headsets for a number of people one could envision building a system to distribute a common RF signal with virtually identical quality and characteristics at each "port". This might be similar to a small cable TV system. This would then allow each participant to bring along their own gear and could lead to the "biathlon" that you describe. Such a "test-bed" at hamfests might just start a new craze, similar to QRP enthusiasm itself.

Getting back to your idea of "how could WSPI best be defined and tested?" It's a great goal and you propose an interesting idea -- CP runs with silence periods -- but I do not believe that a "digital multimeter and perhaps a low-pass filter" could possibly "make accurate readings" of the complexity and nature of the different aspects of "marginal signal" quality and all that it means.

Again, combining some of these previous thoughts, I now think about the computer world. Testing and comparisons in that world usually take the form of a "test suite", or more often a "suite of test suites". It is interesting to note that this is in contrast to the radio world where everything is typically based on "specs" which are basically some particular analog measurement with a set of tightly controlled conditions.

How might one be able to create a "test suite" for measuring your proposed WSPI? The problem strikes me as one of distribution. The "hamfest cable TV-like system" that I described above would be a great system for running a test suite. The problem is that it lives in a particular place and has the problem of reproducibility. But, what if such a system was driven by a digital source? Sort of a CD-ROM system for RF? This of course can actually be done, at least to some degree, using some form of high bandwidth and/or compression techniques.

In practical terms it might require too much bandwidth and/or prove too costly, at least for the average ham, to deal with the RF side of things. But, it seems clear that we can already deal with the audio side of the house to at least compare operator skill or audio-based automated copy systems.

With a set of standards for this kind of system in place one could then create and distribute test suites on CD-ROM and/or send them via the Internet or even over radio itself. Instead of a CP run we'd have a WSPI suite distribution.

Just some thoughts...

~Wes

-----  
  
From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: James Lyons <jlyons@CAM.ORG>  
Subject: [1702] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <199507141044.GAA03610@Stratus.CAM.ORG>



I have always felt that the ability to receive QRP signals at a QRO or QRP station was not sufficiently recognized and I welcome your interesting attempt to rectify this.

Another rough and ready approach in contests might be to create a category to reward the operator (QRP or QRO) who receives the most QRPP stations. That is, create a receiving category in which points are awarded on the basis of the power of the station you RECEIVE ... bonus points for receiving milliwatters. That would benefit the milliwatters and, perhaps, change the attitude of some who resent having to struggle with receiving QRP stations. Only drawback might be that it could attract "QRO types" into QRP contests with the resulting QRM for us all.

Jim, VE2KN

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Bob Gobrick V01DRB/WA6ERB <bgobrick@terra.nlnet.nf.ca>  
Subject: [1707] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <Pine.OSF.3.91.950714103055.355D-100000@terra.nlnet.nf.ca>

Wayne,

I enjoyed reading your piece on weak signal proficiency index. As a little follow-up that strays from your concept of the "operator skills" a program that has been in existence for quite a while that helps categorize your "equipment skills" (i.e. receiver, antennas preamps etc) is the ZRO Tests that AMSAT runs periodically through the AMSAT satellites. Basically a command station (Andy MacAllister WA5ZIB in Houston) sends code groups at decreasing lower and lower power levels until the signal drops truly into the "space" noise. The station that can copy and decipher the weakest signal gets a "King of the Hill" certificate verifying his sensitive "ears".

Anyway this program by AMSAT has been well established and may be one of the factors in helping to put together a program that identifies the "super" operators - both in efficiency of equipment and efficiency in "brain equipment".

Thanks again for your thoughts - I have to admit that I amazed myself in one QRP contest when I decided to go "native" and run a collector's item Ten Tec PM-3 'barn door wide" dc receiver and a wire antenna - I was actually able to make Q's in what most people would really call QRM (boy it's amazing how many operators wimp out in a qso because a station near by enters their 1 Khz bandwidth filter - only kidding).

73/72 bob V01DRB/WA6ERB

-----  
Bob Gobrick VO1DRB/WA6ERB/VE2DRB Newfoundland, Canada

QRPer Galore - QRP ARCI, GQRP, NORCAL, NEQRP, COQRP, MIQRP, NWQRP

Internet: bgobrick@terra.nlnet.nf.ca  
rgobrick@public.compuserve.nf.ca

Compuserve: 70466.1405@compuserve.com  
-----

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Thom <thom@li.net>  
Subject: [1709] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <Pine.SUN.3.91.950714100720.10684A-100000@linet01>

Hi all,

This sounds like a great idea...at least on the surface, it would certainly make us a bit more sought after rather than passed over... As to the concern of QRM from QRO's, it would be kinda nice to have a pile up of stations after us (just one hams opinion)

73 de  
Tom  
WB2QDG

thom@li.net

On Fri, 14 Jul 1995, James Lyons wrote:

> I have always felt that the ability to receive QRP signals at a QRO or  
> QRP station was not sufficiently recognized and I welcome your  
> interesting attempt to rectify this.  
>  
> Another rough and ready approach in contests might be to create a  
> category to reward the operator (QRP or QRO) who receives the most QRPP

> stations. That is, create a receiving category in which points are  
> awarded on the basis of the power of the station you RECEIVE ... bonus  
> points for receiving milliwatters. That would benefit the milliwatters  
> and, perhaps, change the attitude of some who resent having to struggle  
> with receiving QRP stations. Only drawback might be that it could  
> attract "QRO types" into QRP contests with the resulting QRM for us all.  
>  
> Jim, VE2KN  
>  
>

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: "John F. Woods" <jfw@jfwhome.funhouse.com>  
Subject: [1710] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <199507141432.KAA06739@jfwhome.funhouse.com>

> Since the Miles per Watt award requires confirmation from the receiving  
> station, if I am not mistaken, then both should receive the award.

Does W1AW get an award when someone sends in for them 40WPM code proficiency  
certificate?

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Mike Thomas <MTHOMAS@UGA.CC.UGA.EDU>  
Subject: [1712] Re: A Proposal: The Weak Signal Proficiency Index  
Message-ID: <950714.103824.EDT.MTHOMAS@UGA.CC.UGA.EDU>

On Fri, 14 Jul 1995 10:32:09 -0400 you said:

>> Since the Miles per Watt award requires confirmation from the receiving  
>> station, if I am not mistaken, then both should receive the award.  
>

>Does W1AW get an award when someone sends in for them 40WPM code proficiency  
>certificate?

John,

Of course not. There would be rules. I guess if W1AW powered down then they  
may want to give out reception awards. I had meant this suggestion for two  
stations and not special transmissions like W1AW.

KE4LAU

Mike Thomas

University Computing & Networking Services  
University of Georgia

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: jcumming@clark.dgim.doc.ca (Jim Cummings)  
Subject: [1706] Re: Canadian Amateur Privilidges  
Message-ID: <9507141244.AA17665@clark.dgim.doc.ca>

> Can anyone help me fill out the info I need to take my gear into  
> Canada during my August vacation?  
>  
> I wrote the ARRL and got their rundown on Canada so I know I don't  
> need an additional license. I use my call with the "VK " added when  
> signing.  
>

Not to be overly nationalistic, but you would use VE... unless of course  
you are indeed going to the Australia!

Regardless, you will have to use the appropriate prefix depending on the  
call sign area that you are in i.e. KR4GL/VE3 if you are in Ontario,  
KR4GL/VE4 for Manitoba. Refer to RIC-25 for the complete list.

(Note to John: I will send you a separate message with RIC 25 attached.)

> It also said I can take my radio equipment into the country without  
> any expected customs problems. They even gave me the paragraph to  
> cite if the border person is confused.  
>

Make sure you register your equipment with U.S. customs so that when you  
return, you won't get hassled by your Customs custodians. You may be asked  
what you got in the car, but it is unlikely. Make sure you bring your U.S.  
licence!

> But here's the question:  
>  
> When in Canada I operate under CANADIAN rules and have privileges  
> according to a Canadian license. So what exactly are the privileges  
> for the Canadian equivalent of a US "Advanced" Class license?  
>

Your privileges are equivalent to the holder of the Amateur Radio Operator's  
Certificate with Basic, Morse (12 wpm) and Advanced qualifications. As  
such, you are allowed to operate on all the frequencies that a Canadian is

allowed. Therefore, you are not limited to the U.S. allocations because you are operating within our jurisdiction, not your home country. For example, while you are in Canada, you may operate phone on any frequency below 3750 kHz, because we do not have any regulated sub-bands. There are some differences, however. For example, 420-430 MHz is a commercial band and not allowed for amateur operation.

> Another question is have I forgotten to find out anything, or it (as  
> Ross Perot would say) "just that simple"?  
>  
> Thanks in advance for any notes you have time to jot down (either by  
> way of travel experience, living in Canada).  
>  
> 72 de KR4GL  
> John Foote  
>  
>  
>  
>

If you are coming up here to Ottawa, let me know... you can come over and have a homebrew beer. Although our commercially available beer is great, my home brew is better!

```
=====
                Jim Cummings
      eMail:jcumming@clark.dgim.doc.ca
packet:VE3XJ@VE3JF.#EONT.ON.CA.NOAM
      73 and live better digitally
      DON'T GET TOO EXCITED...
      because remember, today is the first
      day of the rest of your life.
=====
```

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: GREGOIRE@VALLEY.NET (ERNEST GREGOIRE)  
Subject: [1723] Re: Canadian Amateur Priviledges  
Message-ID: <199507141810.0AA02375@dartvax.dartmouth.edu>

>> Can anyone help me fill out the info I need to take my gear into  
>> Canada during my August vacation?  
>>  
>>  
>  
>Make sure you register your equipment with U.S. customs so that when you

>return, you won't get hassled by your Customs custodians. You may be asked  
>what you got in the car, but it is unlikely. Make sure you bring your U.S.  
>licence!

>

>>> 72 de KR4GL

>> John Foote

>>>If you are coming up here to Ottawa, let me know... you can come over and  
>have a homebrew beer. Although our commercially available beer is great, my  
>home brew is better!

>

> =====

> Jim Cummings

> eMail:jcumming@clark.dgim.doc.ca

> packet:VE3XJ@VE3JF.#EONT.ON.CA.NOAM

> 73 and live better digitally

> DON'T GET TOO EXCITED...

> because remember, today is the first

> day of the rest of your life.

> =====

>

>

>

Hi John,

I just spoke with officer O'Brian of the U.S. customs service in  
Derby Line VT. For the others who have not been keeping up with  
this discourse, I am also vacationing in ve2 land in August.

Officer O'brian said to stop at the U.S. customs building before  
leaving the U.S. and registering my equipment. He said to speed up  
the process,simply give them a list of the stuff with serial nos.  
He said that would be all that is required.

He may be contacted at the Derby line office, tel. 802-873-3219

Have a great time, and if you do visit Ottawa, have a brewski for me.

de AA1IK

( Lead by example, It is much easier )  
( to pull a string than it is to push it.)

Ernie Gregoire

( )

Canaan, NH.

( )

(\_\_\_\_\_)

e-mail : GREGOIRE@VALLEY.NET

packet : AA1IK@WA1WOK.FN43FE.NH.USA

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Rick Zabrodski <zabrodsk@med.ucalgary.ca>  
Subject: [1727] Re: Canadian Amateur Privilidges  
Message-ID: <Pine.SUN.3.91.950714155013.7581C-100000@ume>

A Yankee operator in the frozen north must obide by his license class and Canadian rules.

In fact, we are pretty much a "no rules club" up here these days.....ssb on 14.001....no problemo ACCORDING TO THE GOVERNMENT.  
(We call the FCC "Industry Canada".....I have know idea why, but, there it is!)

If you operate as per your advanced privileges up here you will be ok.

Dr. Rick Zabrodski BSc, MD, CCFP(E)	*	VE6GK
Email: zabrodsk@med.ucalgary.ca	*	NorCal 519 ARCI 7650 GQRP 8329
Phone 403-271-5123 Fax 403-225-1276	*	"Power is no substitute for skill"

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: Steven Wilson <randyw@crl.com>  
Subject: [1719] Re: how to run SPICE?  
Message-ID: <Pine.SUN.3.91.950714092900.9708A-100000@crl13.crl.com>

SPICE runs on a PC need math co-processor price about \$95. They have more expensive versions, but the \$95 one does more than I can use....

Intusolf (213) 833-0710  
P.O. Box 6607  
San Pedro, CA 90734-9988

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: myers@bigboy73.West.Sun.COM (Dana Myers)  
Subject: [1720] Re: how to run SPICE?  
Message-ID: <199507141638.JAA03577@sunspot.West.Sun.COM>

> From hosinsky@royac.iac.es Fri Jul 14 09:24:13 1995

> Hi!

>

> I am trying to run the SPICE simulator program (simtel dspice0b.zip)  
> in DOS but get "CPU must be in REAL mode (not V86 mode) to run this  
> program".

>

> Does anyone know how to change to REAL mode - or know of a SPICE  
> version wich runs under DOS (386 + coprocessor)

DOS normally *is* real mode; are you running in the Window MSDOS  
window, or under some kind of extender? V86 mode is the mode used  
to virtualize DOS; if you simply boot DOS without running Windows  
or exit Windows, you should be in real mode.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: KT3A@aol.com

Subject: [1699] Re: QRP Society of Central Pennsylvania

Message-ID: <950713211136\_32273757@aol.com>

Hi Byron,

Since you were the first to ask, I wanted to let the list know a little  
about us as well.

We formed about 2 years ago and today have about 20 members.

We are still in the storming stage of organizing. We have some  
international members now as well as some out of state.

Our purpose in forming was to share ideas, learn by doing, and  
operate from the field, as a local group. We welcome anyone.

We have some technical types such as W3TS, Mike Michaels.

We meet monthly at a local business suite, for now.

We don't like to do a lot of adminstrative stuff. Most of us want  
meetings where we can get away from that lifestyle. So, we have aboutn 5  
minutes of admin and the rest of of meetings are show and tell, and some  
technical forums.

We started a newsletter, to let members who can't make the meetings, know  
what activities and projects are going on. It is

published once every two months and is about 4 pages. We mail  
it to those who want it and our dues have been \$4.00. This is  
cover first class mail, etc. We have mailed meeting agendas as well.

As for club projects we finished out a SWR bridge project which had  
output jacks for a micro or milliamp meter. They were a hit with the  
guys as some had never built anything before.

We will be starting another project which will be a transmitter/reciever  
of modest cost. We don't want in the kit business, so I have been



trying to solicit a good kit to do this. I am willing to write any lesson plans for the theory of operation so we could learn as we build.

So far, one kit builder is working on a kit.

We want something basic, but of moderate performance.

I will then write an article for one of the ham rags to show what our club did with the project.

We recruit from the local ham radio clubs by offering to make QRP presentations. We show our rigs and QSL's. That is a brave thing to do...face QRO DX'ers!

As for contests, I've been toying with the idea of us being sponsor for one. That would add more administrative work though. If one of our members wants to "run" with the idea, I'm sure the club will back them.

I came up with a logo, and Bob, W3HAH is refining it.

I hope that answers most of your questions. There is a lot of QRP'ers in Central Pa but most can't make meetings and for that reason, don't join.

72 de Cam, kt3a QRP Society of Central Pennsylvania #4.

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: Rick Zabrodski <zabrodsk@med.ucalgary.ca>

Subject: [1728] Re: QRP vs dx; QRP vs DX; qrp vs DX - I've sinned.

Message-ID: <Pine.SUN.3.91.950714161309.7581G-100000@ume>

Oh well, we all fall off the wagon once and a while. :-)

I have 3y0pi confirmed 3 bands.....1000w, 100w and 5 watts.

In retrospect, it was not the power, it was how many others in the pileup that was the big factor.

Dr. Rick Zabrodski BSc, MD, CCFP(E)

\*

VE6GK

Email: zabrodsk@med.ucalgary.ca

\*

NorCal 519 ARCI 7650 GQRP 8329

Phone 403-271-5123 Fax 403-225-1276

\*

"Power is no substitute for skill"

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: Mike Robinson <miker@cc.com>

Subject: [1729] Re: QRP vs dx; QRP vs DX; qrp vs DX - I've sinned.

Message-ID: <9507142220.AA29787@voder.nsc.com>

Nick,

The spirit of QRP is putting to practice the rule that says, "...use the least amount of power to maintain the radio contact."

There is no sin in making the contact with the necessary amount of power.

The anti-spirit of the rule, is that QRO'ers don't turn off their linears even when bending the S needle at the receiving end.

Congrats on making Faroe Is. You did so while upholding the true spirit of Ham Radio.

No apologies are necessary.

Absolution available here, at no extra cost.

```
=====
7.3 de Michael aa0ub          | QRP:
miker@cc.com                 Norcal #857 | "This thing's a radio?"
=====
```

From qrp-l@lehigh.edu Fri Jul 14 19:01:00 1995  
From: JimN00CT@aol.com  
Subject: [1703] RE: Shielding Twin lead?  
Message-ID: <950714070808\_32534214@aol.com>

Hi Stuart--

While I agree in theory with a lot of your comments, I have to add my own from practice. I thought that the shield on Twinax would prove problematic and the loss on the transmission line would be significant. NF0R repeatedly told me how quiet his twinax feedline was. "Due to high losses" I would add.

We used twinax at FD for a 7' high full length 1/2 wave dipole on 40. Signals were very loud into the 40-40 rig. The real advantage the Twinax had over open wire or TV twinlead was a decrease in local noise (mercury vapor lamps, cars, lawnmowers, etc.)

I still think for lowest loss that 6" open wire feeders are the best, but when you can't do that or want to try something different OR have high local noise levels, I would suggest trying the twinax or paralleling something like RG-62.

HaJo Brandt had posted some of his data here (or did I read it in SPRAT) regarding paralleled coax feedlines, and one general conclusion was that the higher the characteristic impedance of the coax, the lower the loss.

I also appreciated your comments on audio grounding (grounding one end of the shield vs both, which should be done at RF). I notice just the opposite in a lot of pictures in QST, etc.: the shield on coax from one RF stage to another is many times only grounded at one end. Thanks for clearing that up--it is something I have often wondered about, in terms of 'best practices'.

73, Jim N0OCT

WHY? IF you do not run the twin lead closer than whatever the standard TV twin lead stand off is, to a conductor, there should be NO radiation or pickup, if both ends terminate in balanced systems. The RF is an energy field between the wires, in that little dielectric space between them. Furthermore, if you twist the twin every foot or so, you expose both conductors equally to any nearby "conductor of influence" and the outside effects are removed. Twin line DOES NOT RADIATE if equal and opposite currents are flowing in the conductors which is the usual way it is used with a balanced antenna and transmitter coupling. The energy is between the two wire conductors, stored in the alternating magnetic and electric fields. The shield in TV line was to avoid the deforming of the cable (Moving in a wind for example,) producing a signal as a charge on the dielectric surface which might have an effect at low receiving signal power,

but with the power in transmitting twin lead, I think you would have losses from the capacitance of the shield affecting the balanced conductors carrying the transmitted energy in close proximity. After all, you were thinking the shield would cut down on coupling to other conductors, but what keeps your transmitted power from coupling and charging up the capacitance of the shield, which is after all, another conductor? There is going to be fringing capacitance from the open end of the shield back to the conductors completing the circuit. In RF useage, both ends of shields are usually grounded; in low frequency audio useage they are left open on one end to avoid magnetic single turn "ground Loops" carrying undesired current in parallel to a signal return. This seems a complex issue to most and you might read the book "Grounding and Shielding Techniques in Instrumentation" by my friend Ralph Morrison, an industry expert in these issues and learn the simple physics of these processes. He points out that signals reflect where there is a discontinuity in a shield be it grounding the shield at one end, or leaving one end open circuited. You would create more problems with transmitting if you attempted to use the shielded feed when it is not needed. Just follow the proper use of a balanced antenna with twin conductor parallel feed line: bring the feed off at 90 degrees to the dipole for its run to the station location as far as possible.

IF you don't match impedances at both ends you have turned your feed line into part of the antenna, and have a "tuned" line. Now this is what I think you are wanting to avoid, and use of a Match Box at the rig and an antenna that matches the impedance of the other end of the parallel line should minimize the problems you thought you would have, without the weight and expense of adding a shield, or using more expensive feed line than you need.

72,  
Stuart K5KVH

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995  
From: tbowman@leba.net  
Subject: [1698] Re: Zipcord Dipole  
Message-ID: <199507140020.UAA07778@fig.leba.net>

> Hi Gang:

>

> A while back, someone on the list mentioned the possibility of using zipcord  
> separated along one end to form a dipole. The other, unseparated portion  
> would then be run ladder-line fashion to, presumably, a balun or tuner.

My elmer told me about this about twenty years ago. Seems he had a  
"dipole" that was made with a 100 foot length of zip cord and had like 30  
feet of wire on each leg of the dipole while the remaining 40 feet stayed  
together. He claimed it gave him a 50 ohm antenna and I think it was for  
40M.

Anyone want to put the facts to this urban legend?

My elmer said he used a zipcord antenna after WWII as an economy move. The  
antenna was balanced and so was his xmtr output network.

At that time, he used a "swinging link" antenna tuner as he called it. Not  
an unbalanced pi-network like most use today, to match his zipcord antenna.

His antenna coupler could probably load most anything. I doubt anyone was  
looking for the mythical 50-ohm antenna back then.

I've stumbled across commercial versions of swinging links at hamfests- old  
Barker & Williamson coils, one on each side of center, with the link made of a  
few turns in the center between the two coils.

The link moves in and out between the coils to match the antenna.

The coil assembly is mounted on a ceramic bar. It's made to plug into a xmtr  
with banana plugs, one coil assembly for each band.

<---- End Included Message ---->

From qrp-1@lehigh.edu Fri Jul 14 19:01:00 1995

From: cebik@UTKVX.UTCC.UTK.EDU

Subject: [1705] Re: Zipcord Dipole

Message-ID: <Pine.PMDF.3.91.950714075803.547432177E-100000@utkvx.utk.edu>

On Thu, 13 Jul 1995 tbowman@leba.net wrote:

>

> > A while back, someone on the list mentioned the possibility of using zipcord  
> > separated along one end to form a dipole. The other, unseparated portion  
> > would then be run ladder-line fashion to, presumably, a balun or tuner.

>

> My elmer told me about this about twenty years ago. Seems he had a  
> "dipole" that was made with a 100 foot length of zip cord and had like 30  
> feet of wire on each leg of the dipole while the remaining 40 feet stayed  
> together. He claimed it gave him a 50 ohm antenna and I think it was for  
> 40M.

Please see the latest ARRL HB antenna or feedline chapter; there is some material there about losses that suggests to me that regular materials (bare or coated antenna wire plus feedline--even RG 174 for QRP) might be a better performer. Data not at hand, but memory says the zip cord option may be useful only in emergency conditions when nothing else is available. With that much rubber/plastic coating, "regular" materials would also be lighter to carry. Also, zip cords are variously constructed, so the impedance will vary from one brand to the next, and from one size to the next (some have #20 conductors, other may be larger). The coatings are for home wear and tear, not for RF, hence the losses in the feedline section may be considerable. In short, when experimenting with zip cord antenna/feedline assemblies, caveat emptor.

-73-

LB, W4RNL